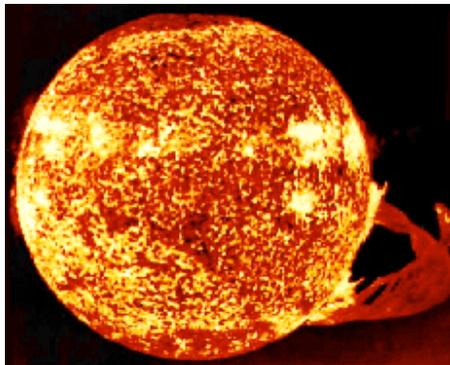


Scientific notation III

Physicists and astronomers almost always use very small or very large numbers in the calculations or measurements.

Scientific notation is the best, and most compact, way to work with very large and small numbers.

This activity will review how to multiply numbers in this form.



Surface area of the Sun = $4 \times (3.141) \times (6.97 \times 10^5)^2$ square kilometers

Scientific notation simplifies calculations with large or small numbers.

- Scientific Notation provides an easy means to multiply large and small numbers together.

Now you try!

Here's how to do it!

State Problem: $1.5 \times 10^{-11} \times 4.5 \times 10^{+20}$
 Group the factors: $(1.5 \times 4.5) \times (10^{-11} \times 10^{+20})$
 Add the exponents: $6.75 \times 10^{(-11+20)}$
 Answer: 6.75×10^9

Multiply these numbers using scientific notation.

1) Energy in ergs of Sun in 1 year:

$$4.1 \times 10^{33} \times 3.1 \times 10^7$$

2) Number of seconds in 1 year:

$$8.6 \times 10^4 \times 3.65 \times 10^2$$

3) Centimeters in 1 light year:

$$6.32 \times 10^4 \times 1.47 \times 10^{11}$$

4) Mass of a large star in grams:

$$1.64 \times 10^{-24} \times 3.5 \times 10^{57}$$

5) Number of stars in the visible universe:

$$2.5 \times 10^{11} \times 7.5 \times 10^{10}$$